SNA Low Level Nav Training

14 October, 2014

LCDR Larry Spurlin– Standardization Officer
LT McGunigle – Training Officer
LT Scheiber – CAT I Stage Manager
LT Goettsche / LT Carnes – CAT II Stage Leaders
LT Weideman – CAT III Stage Leader
Capt White – CAT IV Stage Manager

Agenda

- Common SNA Deficiencies
- Low Level Navigation
  - Plan (Smart Packs)
  - Brief
  - Execution
- Formation Considerations
- NVG Considerations

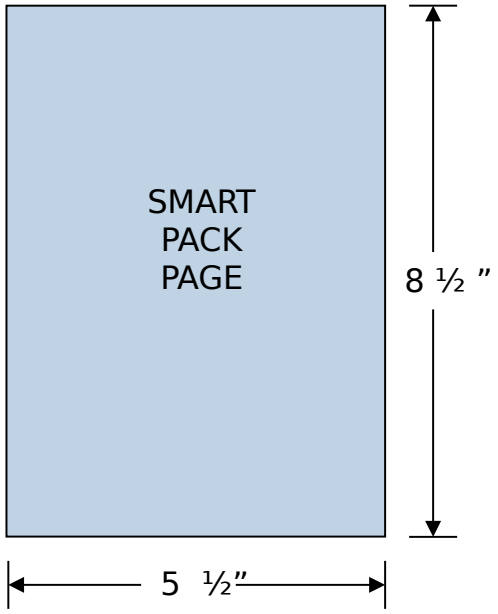
Common SNA Deficiencies

- Unprofessional/Non-standardized/Incomplete Smart Packs
- Not familiar with Fuel Planning Charts in NATOPS
- Convert fuel remaining to time remaining (i.e., Time-On-Station)
- Understanding of Mission Fuel/Go-No Go Fuel/Bingo Fuel
- Missing/Inadequate/Incomplete LZ evaluations
- Understanding of Power Required vs. Power Available
- Brief Content – not tailoring it to the specifics of their event
  - The video/content in the FTI is a start, not a script!
- NVG Stage – insufficient use of NVG considerations during mission brief (Illumination/Terrain Contrast/Atmospheric Obscurations)

Smart Packs

- Standardized Smart Packs
  - Smart packs will include
    - Cover Sheet
    - Route Cards (NASWF, course rules, low level nav route, delay at OLF, course rules home)
    - Bingo Route Card
    - LZ Diagram (Site 8, Harold, etc)

Kneeboard Card and Weight and Balance should not be included in Smart Pack but provided separately to the IP.

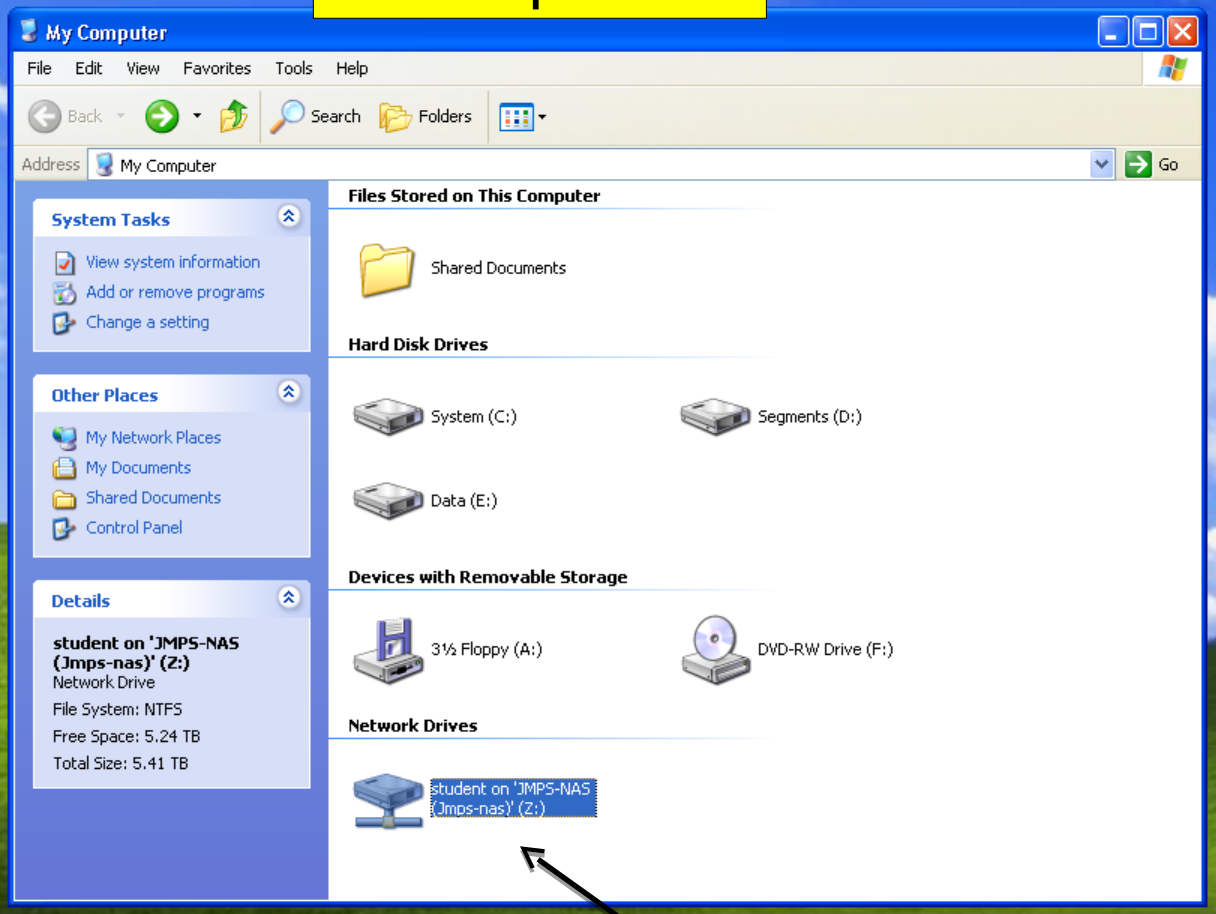


Smart Packs

- Loaded on JMPS computers in ‘Z’ Drive - “Student Share Drive” and posted on Factoryhand University
  - Use HT-18 Cover Sheet (Low Level Nav, Form, or NVG)
  - Use HT-18 Route Cards
  - LZ Diagrams
    - Site 8/Harold OLFs for Day events
    - All NVG airports for NVG events

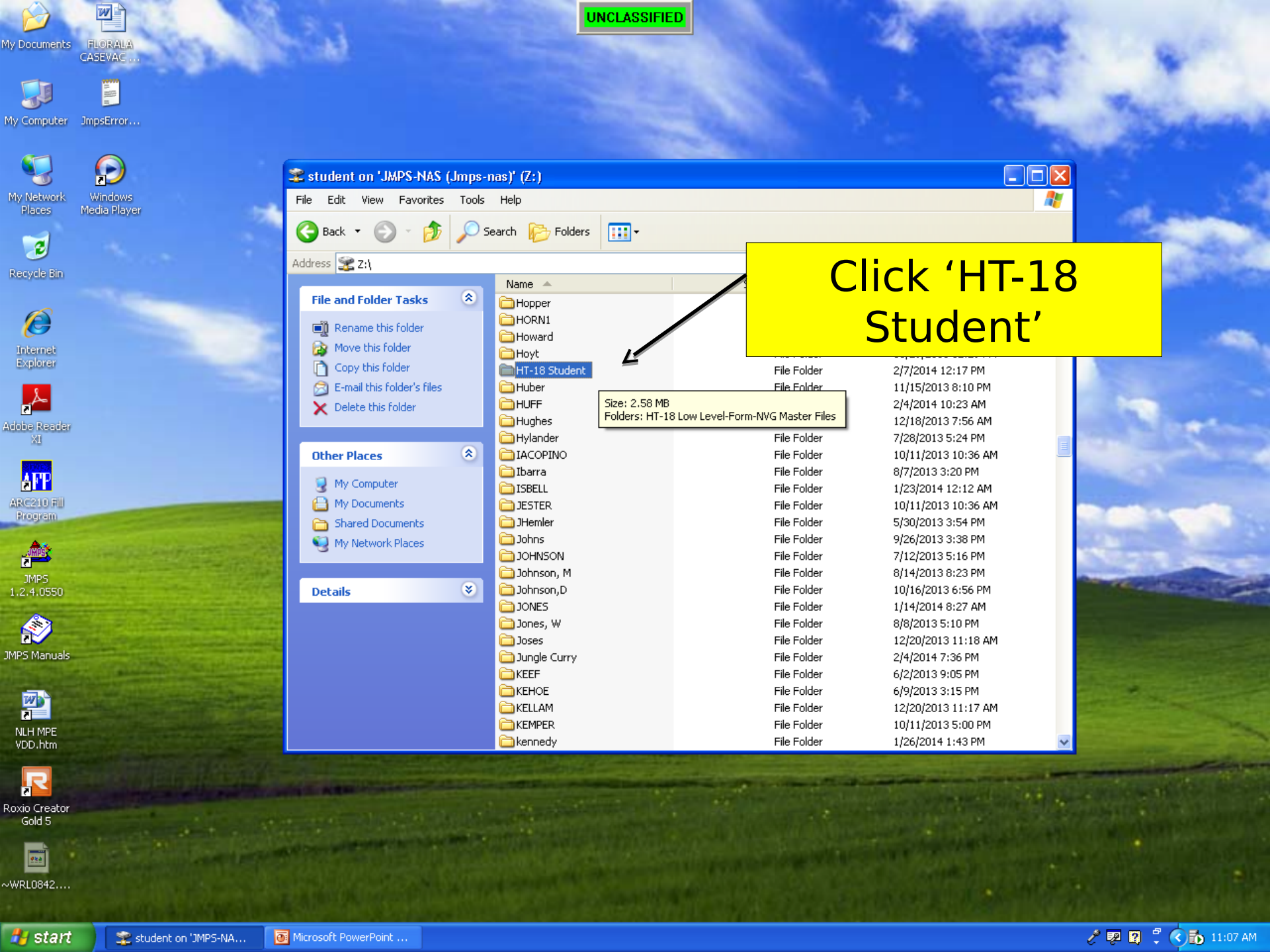
UNCLASSIFIED

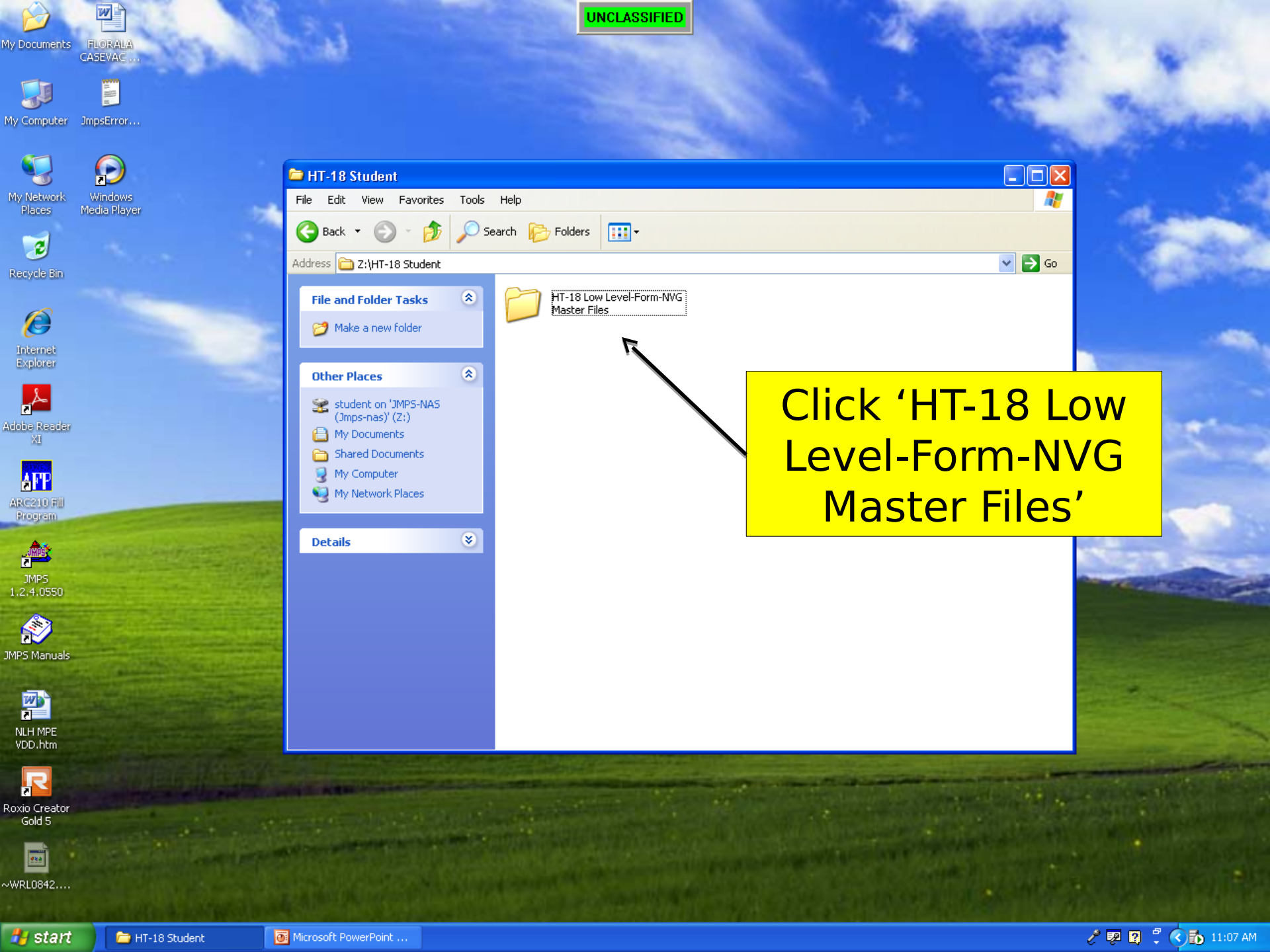
JMPS Computer



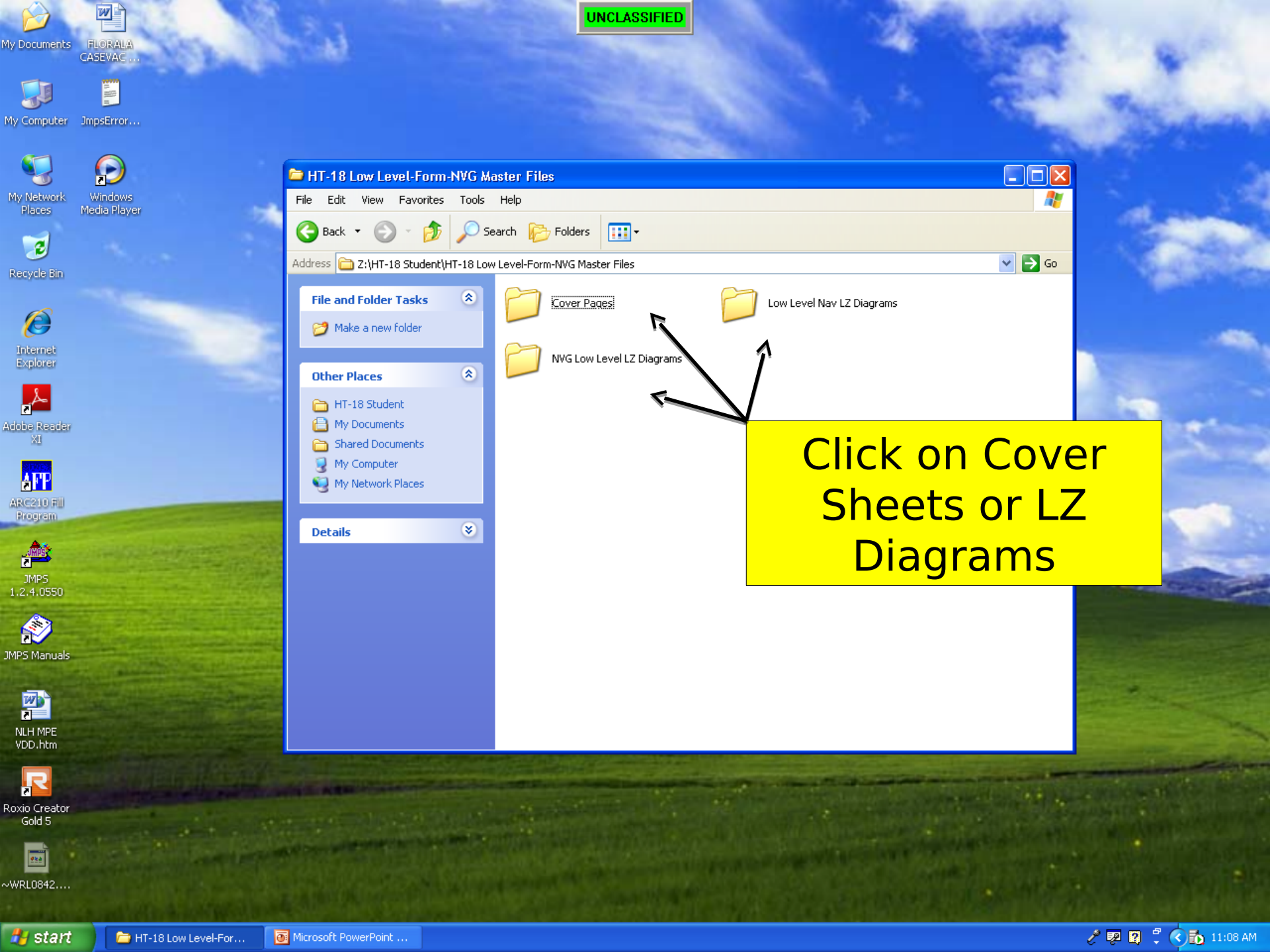
Click ‘Z’ Drive

UNCLASSIFIED




UNCLASSIFIED
My Documents
FLORALA CASEVAC ...
My Computer
JmpsError...
My Network Places
Windows Media Player
Recycle Bin
Internet Explorer
Adobe Reader XI
ARC210 Fill Program
JMPS 1.2.4.0550
JMPS Manuals
NLH MPE VDD.htm
Roxio Creator Gold 5
~WRL0842....
HT-18 Student
File Edit View Favorites Tools Help
Back Search Folders
Address Z:\HT-18 Student
Go
File and Folder Tasks
Make a new folder
Other Places
student on 'JMPS-NAS (Jmps-nas)' (Z:)
My Documents
Shared Documents
My Computer
My Network Places
Details
HT-18 Low Level-Form-NVG Master Files
Click 'HT-18 Low Level-Form-NVG Master Files'
start
HT-18 Student
Microsoft PowerPoint ...
11:07 AM

UNCLASSIFIED



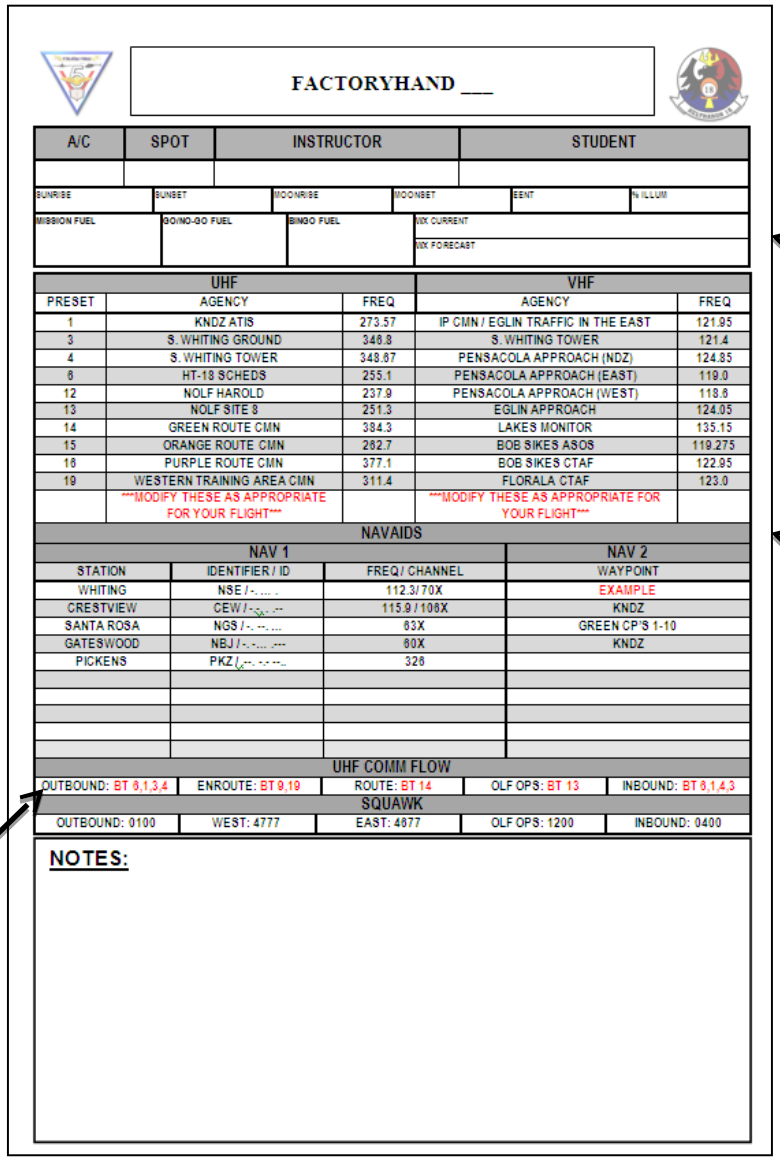
Smart Packs

- Cover sheets for Low Level Nav, Form, and NVG are in ***Cover Sheets*** folder.

- Site 8 and Harold LZ Diagrams are in ***Low Level Nav LZ Diagram***.

- NVG Landing Sites (Atmore, Bay Minette, Defuniak Springs, Florala, Foley, Sonny Callahan) are in ***NVG Low Level LZ Diagrams*** folder.

Example Cover Sheet



FACTORYHAND ___

A/C	SPOT	INSTRUCTOR	STUDENT

SUNRISE	SUNSET	MOONRISE	MOONSET	EENT	% ILLUM

MISSION FUEL	GO/NO-GO FUEL	BINGO FUEL	VIX CURRENT
			VIX FORECAST

UHF			VHF	
PRESET	AGENCY	FREQ	AGENCY	FREQ
1	KNDZ ATIS	273.57	IP CMN / EGLIN TRAFFIC IN THE EAST	121.95
3	S. WHITING GROUND	348.8	S. WHITING TOWER	121.4
4	S. WHITING TOWER	348.87	PENSACOLA APPROACH (NDZ)	124.85
8	HT-18 SCHEDS	255.1	PENSACOLA APPROACH (EAST)	119.0
12	NOLF HAROLD	237.9	PENSACOLA APPROACH (WEST)	118.6
13	NOLF SITE 8	251.3	EGLIN APPROACH	124.05
14	GREEN ROUTE CMN	384.3	LAKES MONITOR	135.15
15	ORANGE ROUTE CMN	262.7	BOB SIKES ASOS	119.275
16	PURPLE ROUTE CMN	377.1	BOB SIKES CTAF	122.95
19	WESTERN TRAINING AREA CMN	311.4	FLORALA CTAF	123.0
	MODIFY THESE AS APPROPRIATE FOR YOUR FLIGHT		***MODIFY THESE AS APPROPRIATE FOR YOUR FLIGHT***	

NAVAIDS

NAV 1			NAV 2
STATION	IDENTIFIER / ID	FREQ / CHANNEL	WAYPOINT
WHITING	NSE / -.	112.3 / 70X	EXAMPLE
CRESTVIEW	CEW / -.-. .--	115.9 / 108X	KNDZ
SANTA ROSA	NGS / -. --. ...	83X	GREEN CP'S 1-10
GATESWOOD	NBJ / -. -... .---	80X	KNDZ
PICKENS	PKZ / .--. -.--	32B	

UHF COMM FLOW

OUTBOUND: BT 6,1,3,4	ENROUTE: BT 9,19	ROUTE: BT 14	OLF OPS: BT 13	INBOUND: BT 6,1,4,3

SQUAWK

OUTBOUND: 0100	WEST: 4777	EAST: 4677	OLF OPS: 1200	INBOUND: 0400

NOTES:

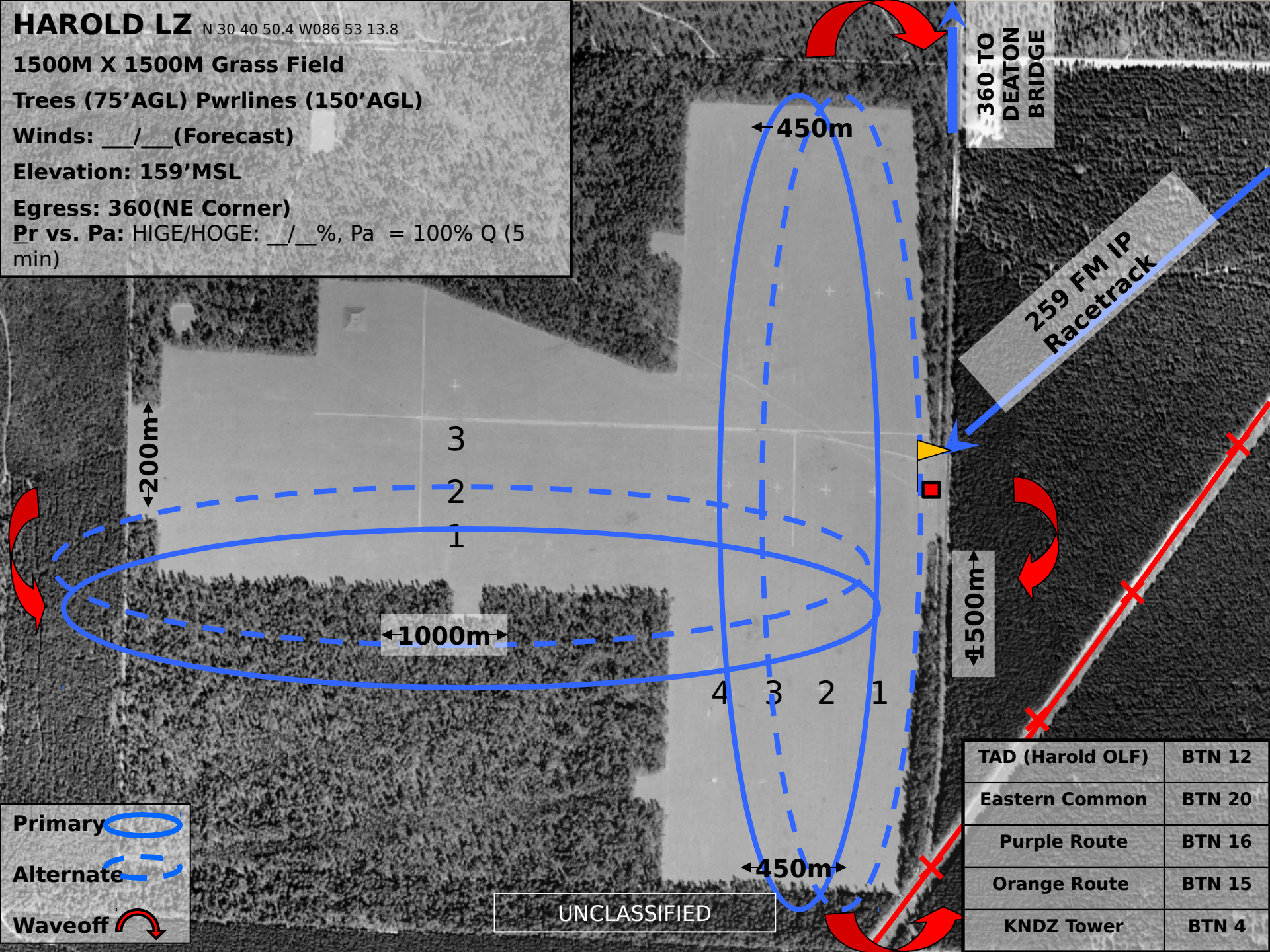
Enter flight information

Modify frequency and navaid information to fit your flight

Modify comm flow for your flight

Example LZ Diagram - Harold

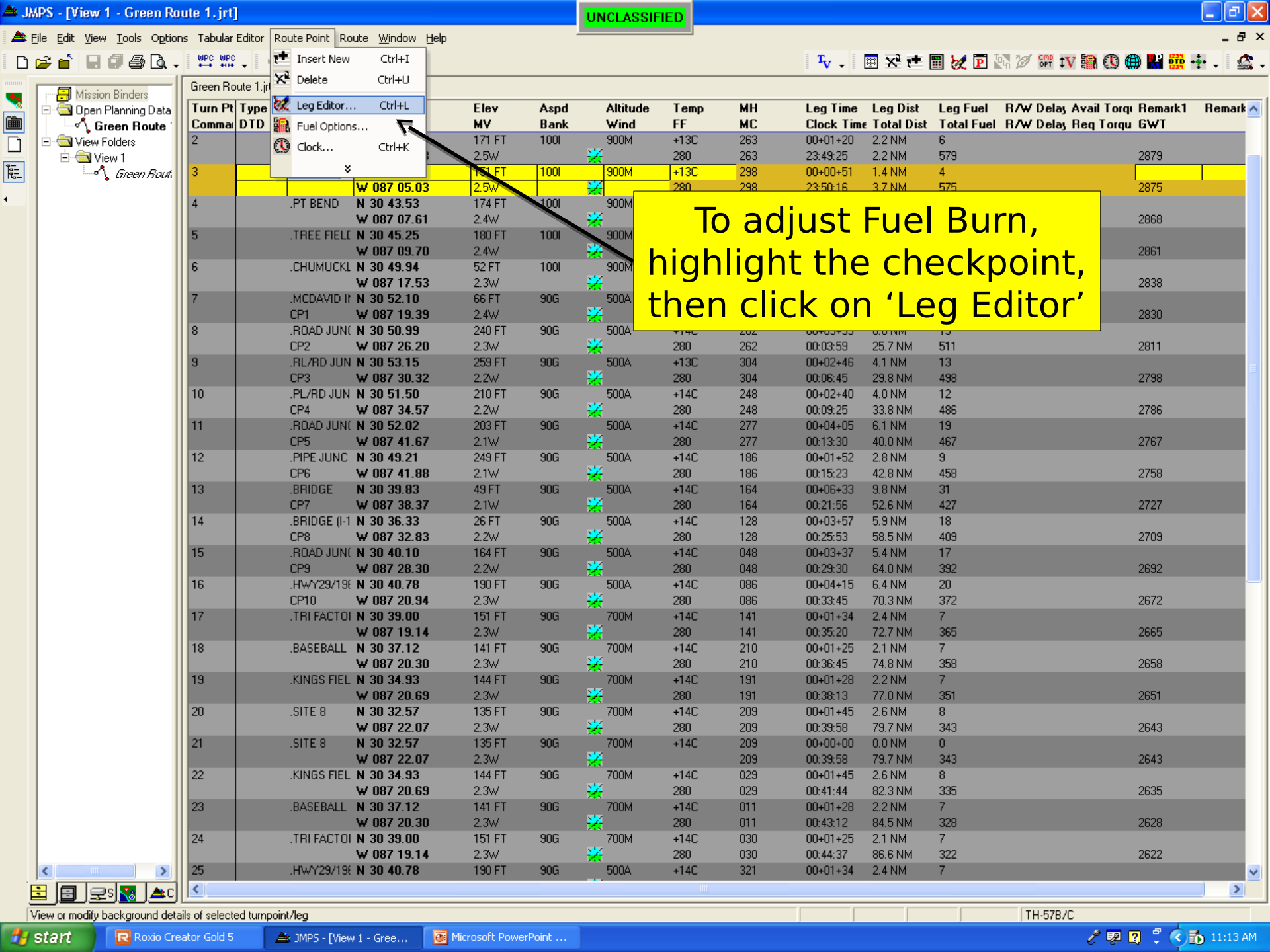
- See Next Slide:
  - Fill in Winds and HIGE/HOGE as expected / calculated.
  - Adjust solid / dashed blue ovals for desired primary and alternate patterns based on desired landing point.
  - Adjust Waveoff arrows (red arrows) as necessary


HAROLD LZ N 30 40 50.4 W086 53 13.8
1500M X 1500M Grass Field
Trees (75'AGL) Pwrlines (150'AGL)
Winds: ___/___(Forecast)
Elevation: 159'MSL
Egress: 360(NE Corner)
Pr vs. Pa: HIGE/HOGE: __/__%, Pa = 100% Q (5 min)
360 TO DEATON BRIDGE
450m
259 FM IP Racetrack
200m
3
2
1
1000m
1500m
4 3 2 1
450m
Primary
Alternate
Waveoff
UNCLASSIFIED
TAD (Harold OLF) BTN 12
Eastern Common BTN 20
Purple Route BTN 16
Orange Route BTN 15
KNDZ Tower BTN 4

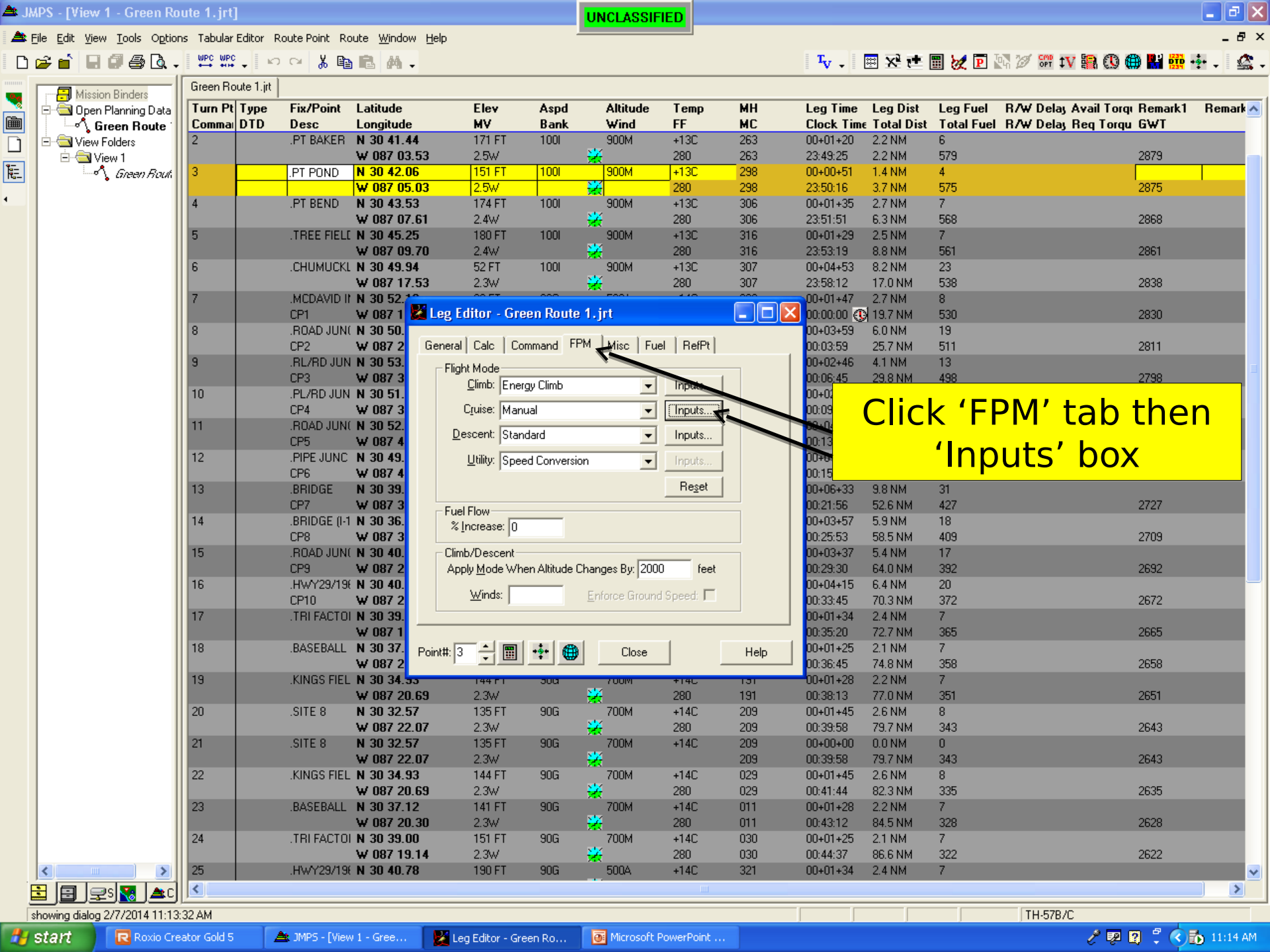
Smart Packs

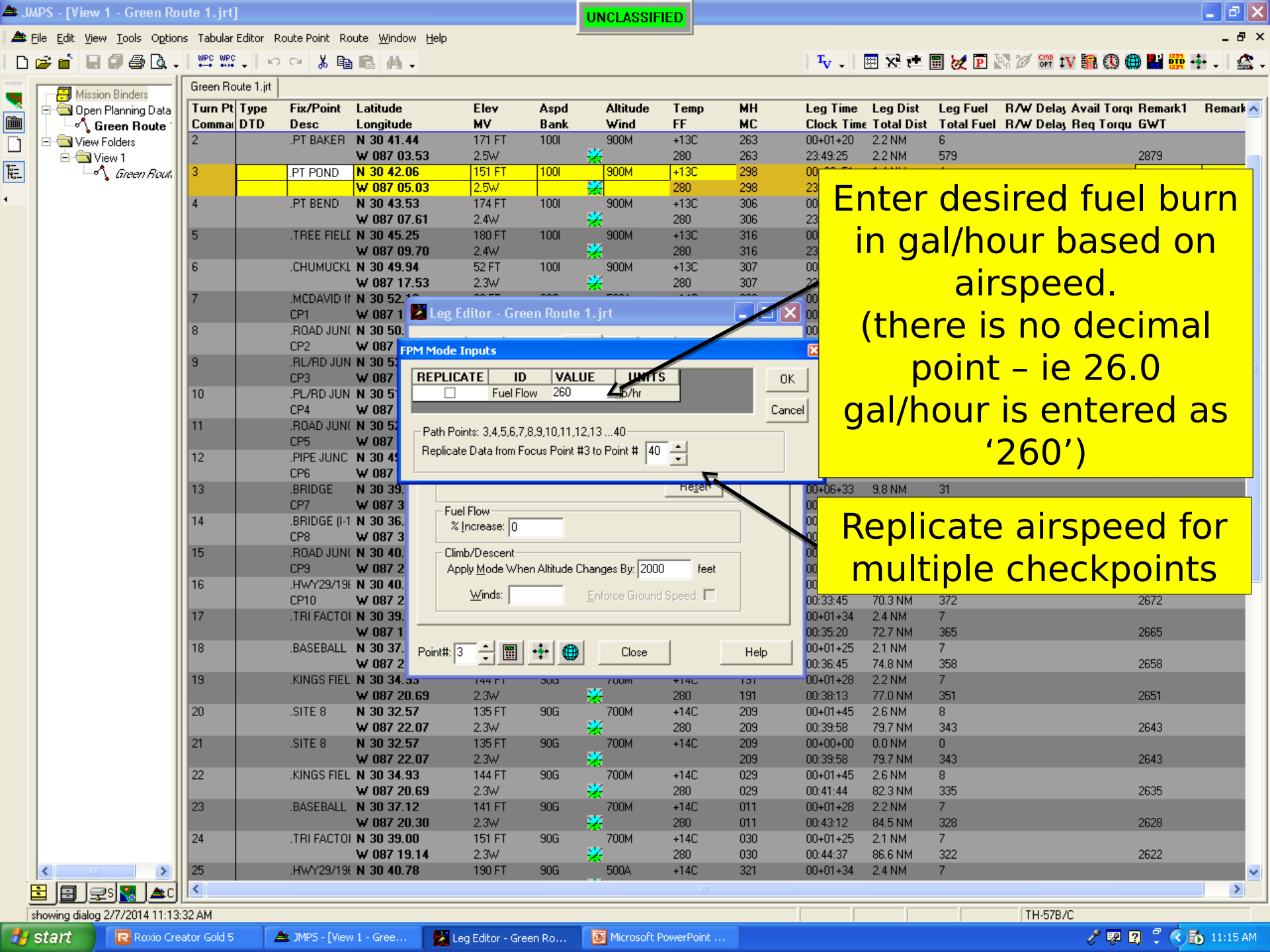
- Route Cards
  - Follow instructions to build route cards per JMPS Class.
  - Adjust Fuel Burn **per NATOPS** for airspeed on each leg
    - Course Rules – 100 KIAS
    - Route – 90 KIAS
    - TLAs – 80 KIAS
    - Bingo – Max Range Airspeed
  - JMPS default set to 28 gph for all airspeeds – **this is NOT accurate!**

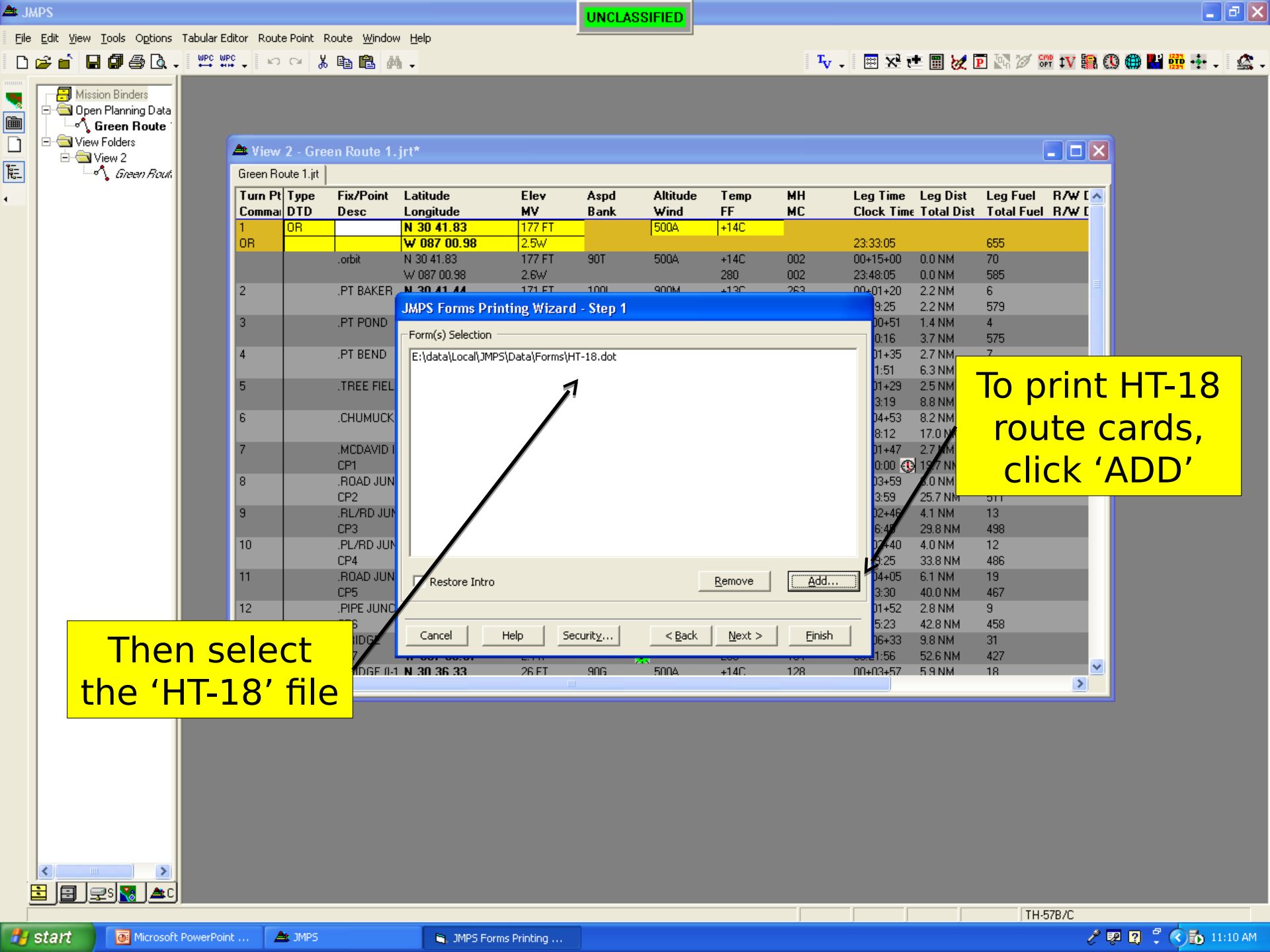
Don’t forget to adjust fuel load for RWOP OLF Fuel Minimums (Site 8 – 25 gal, Harold – 20 gal).



Turn Pt / Comma	Type / DTD		Elev / MV	Aspd / Bank		Altitude / Wind	Temp / FF	MH / MC	Leg Time / Clock Time	Leg Dist / Total Dist	Leg Fuel / Total Fuel	R/W Delay / R/W Delay	Avail Torq / Req Torqu	Remark1 / GWT	Remark
2			171 FT	100I		900M	+13C	263	00+01+20	2.2 NM	6				
			2.5W				280	263	23:49:25	2.2 NM	579			2879	
3			171 FT	100I		900M	+13C	298	00+00+51	1.4 NM	4				
		W 087 05.03	2.5W				280	298	23:50:16	3.7 NM	575			2875	
4		.PT BEND N 30 43.53	174 FT	100I		900M									
		W 087 07.61	2.4W											2868	
5		.TREE FIELI N 30 45.25	180 FT	100I		900M									
		W 087 09.70	2.4W											2861	
6		.CHUMUCKL N 30 49.94	52 FT	100I		900M									
		W 087 17.53	2.3W											2838	
7		.MCDAVID I N 30 52.10	66 FT	90G		500A									
		CP1 W 087 19.39	2.4W											2830	
8		.ROAD JUN(N 30 50.99	240 FT	90G		500A									
		CP2 W 087 26.20	2.3W				280	262	00:03:59	25.7 NM	511			2811	
9		.RL/RD JUN N 30 53.15	259 FT	90G		500A	+13C	304	00+02+46	4.1 NM	13				
		CP3 W 087 30.32	2.2W				280	304	00:06:45	29.8 NM	498			2798	
10		.PL/RD JUN N 30 51.50	210 FT	90G		500A	+14C	248	00+02+40	4.0 NM	12				
		CP4 W 087 34.57	2.2W				280	248	00:09:25	33.8 NM	486			2786	
11		.ROAD JUN(N 30 52.02	203 FT	90G		500A	+14C	277	00+04+05	6.1 NM	19				
		CP5 W 087 41.67	2.1W				280	277	00:13:30	40.0 NM	467			2767	
12		.PIPE JUNC N 30 49.21	249 FT	90G		500A	+14C	186	00+01+52	2.8 NM	9				
		CP6 W 087 41.88	2.1W				280	186	00:15:23	42.8 NM	458			2758	
13		.BRIDGE N 30 39.83	49 FT	90G		500A	+14C	164	00+06+33	9.8 NM	31				
		CP7 W 087 38.37	2.1W				280	164	00:21:56	52.6 NM	427			2727	
14		.BRIDGE (I-1 N 30 36.33	26 FT	90G		500A	+14C	128	00+03+57	5.9 NM	18				
		CP8 W 087 32.83	2.2W				280	128	00:25:53	58.5 NM	409			2709	
15		.ROAD JUN(N 30 40.10	164 FT	90G		500A	+14C	048	00+03+37	5.4 NM	17				
		CP9 W 087 28.30	2.2W				280	048	00:29:30	64.0 NM	392			2692	
16		.HWY29/19(N 30 40.78	190 FT	90G		500A	+14C	086	00+04+15	6.4 NM	20				
		CP10 W 087 20.94	2.3W				280	086	00:33:45	70.3 NM	372			2672	
17		.TRI FACTOI N 30 39.00	151 FT	90G		700M	+14C	141	00+01+34	2.4 NM	7				
		W 087 19.14	2.3W				280	141	00:35:20	72.7 NM	365			2665	
18		.BASEBALL N 30 37.12	141 FT	90G		700M	+14C	210	00+01+25	2.1 NM	7				
		W 087 20.30	2.3W				280	210	00:36:45	74.8 NM	358			2658	
19		.KINGS FIEL N 30 34.93	144 FT	90G		700M	+14C	191	00+01+28	2.2 NM	7				
		W 087 20.69	2.3W				280	191	00:38:13	77.0 NM	351			2651	
20		.SITE 8 N 30 32.57	135 FT	90G		700M	+14C	209	00+01+45	2.6 NM	8				
		W 087 22.07	2.3W				280	209	00:39:58	79.7 NM	343			2643	
21		.SITE 8 N 30 32.57	135 FT	90G		700M	+14C	209	00+00+00	0.0 NM	0				
		W 087 22.07	2.3W					209	00:39:58	79.7 NM	343			2643	
22		.KINGS FIEL N 30 34.93	144 FT	90G		700M	+14C	029	00+01+45	2.6 NM	8				
		W 087 20.69	2.3W				280	029	00:41:44	82.3 NM	335			2635	
23		.BASEBALL N 30 37.12	141 FT	90G		700M	+14C	011	00+01+28	2.2 NM	7				
		W 087 20.30	2.3W				280	011	00:43:12	84.5 NM	328			2628	
24		.TRI FACTOI N 30 39.00	151 FT	90G		700M	+14C	030	00+01+25	2.1 NM	7				
		W 087 19.14	2.3W				280	030	00:44:37	86.6 NM	322			2622	
25		.HWY29/19(N 30 40.78	190 FT	90G		500A	+14C	321	00+01+34	2.4 NM	7				


UNCLASSIFIED
JMPS - [View 1 - Green Route 1.jrt]
File Edit View Tools Options Tabular Editor Route Point Route Window Help
Mission Binders
Open Planning Data
Green Route
View Folders
View 1
Green Route 1.jrt
Leg Editor - Green Route 1.jrt
General Calc Command FPM Misc Fuel RefPt
Flight Mode
Climb: Energy Climb
Cruise: Manual
Descent: Standard
Utility: Speed Conversion
Inputs...
Reset
Fuel Flow
% Increase: 0
Climb/Descent
Apply Mode When Altitude Changes By: 2000 feet
Winds:
Enforce Ground Speed:
Point#: 3
Close
Help
Click 'FPM' tab then 'Inputs' box
showing dialog 2/7/2014 11:13:32 AM
TH-57B/C
start
Roxio Creator Gold 5
JMPS - [View 1 - Gree...
Leg Editor - Green Ro...
Microsoft PowerPoint ...
11:14 AM


UNCLASSIFIED
JMPS - [View 1 - Green Route 1.jrt]
File Edit View Tools Options Tabular Editor Route Point Route Window Help
Green Route 1.jrt
Leg Editor - Green Route 1.jrt
FPM Mode Inputs
REPLICATE ID VALUE UNITS
Fuel Flow 260 #/hr
OK
Cancel
Path Points: 3,4,5,6,7,8,9,10,11,12,13 ...40
Replicate Data from Focus Point #3 to Point # 40
Reset
Fuel Flow
% Increase: 0
Climb/Descent
Apply Mode When Altitude Changes By: 2000 feet
Winds:
Enforce Ground Speed:
Point#: 3
Close
Help
Enter desired fuel burn in gal/hour based on airspeed.
(there is no decimal point – ie 26.0 gal/hour is entered as '260')
Replicate airspeed for multiple checkpoints
showing dialog 2/7/2014 11:13:32 AM
TH-57B/C
start
Roxio Creator Gold 5
JMPS - [View 1 - Gree...
Leg Editor - Green Ro...
Microsoft PowerPoint ...
11:15 AM


UNCLASSIFIED
JMPS
File Edit View Tools Options Tabular Editor Route Point Route Window Help
Mission Binders
Open Planning Data
Green Route
View Folders
View 2
View 2 - Green Route 1.jrt*
Green Route 1.jrt
Turn Pt Type Fix/Point Latitude Elev Aspd Altitude Temp MH Leg Time Leg Dist Leg Fuel
Comma DTD Desc Longitude MV Bank Wind FF MC Clock Time Total Dist Total Fuel
JMPS Forms Printing Wizard - Step 1
Form(s) Selection
E:\data\Local\JMPS\Data\Forms\HT-18.dot
Restore Intro
Remove
Add...
Cancel
Help
Security...
< Back
Next >
Finish
To print HT-18 route cards, click 'ADD'
Then select the 'HT-18' file
TH-57B/C
start
Microsoft PowerPoint ...
JMPS
JMPS Forms Printing ...
11:10 AM

Example Route Card

*** UNCLASSIFIED ***

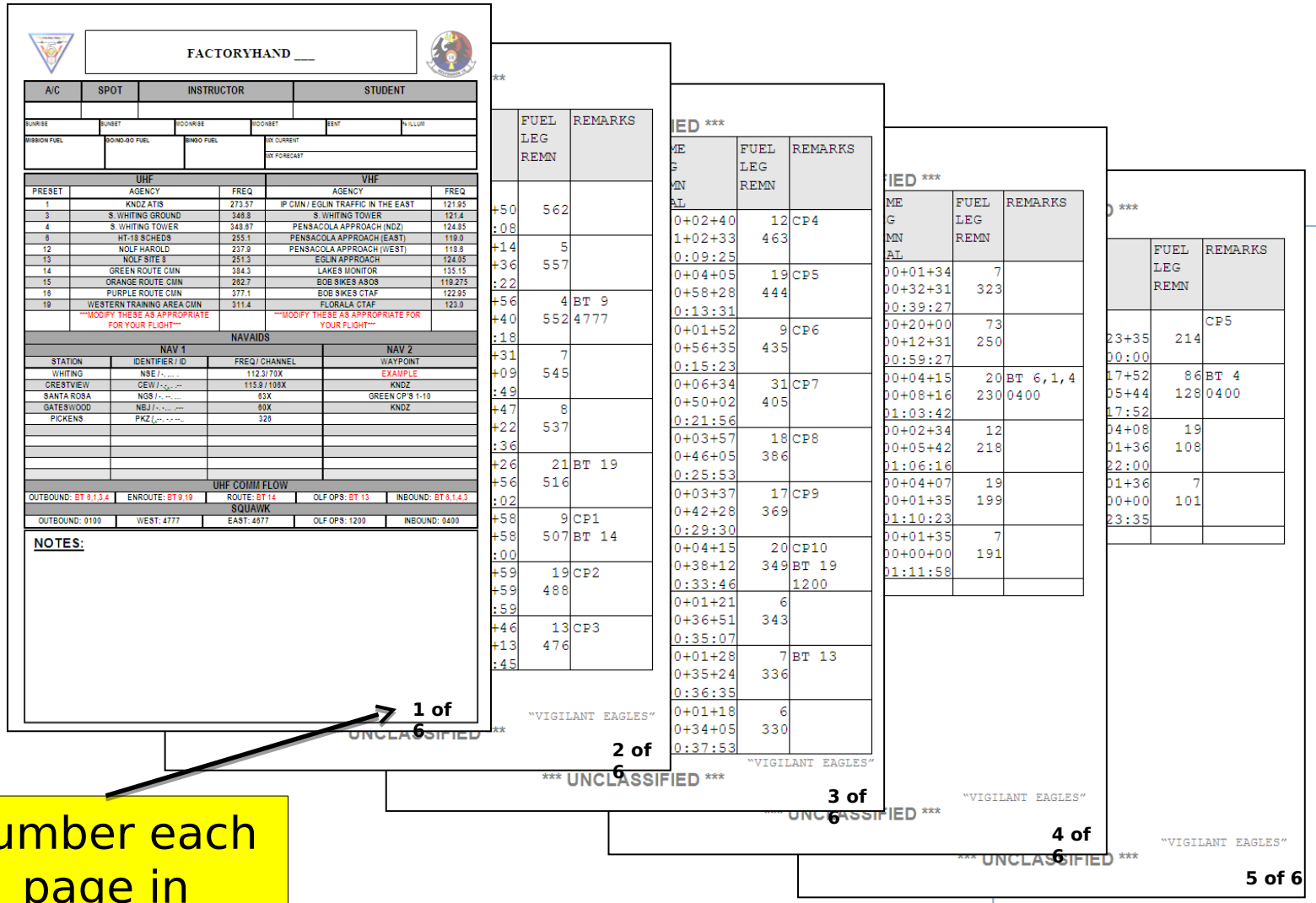
CHECKPOINT NAME/NO. LAT LONG	HDNG	DIST LEG REMN	TIME LEG REMN REAL	FUEL LEG REMN	REMARKS
.KNDZ/A N 30 41 49.690 W 087 00 58.871		100.8	01+23+50 23:48:08	562	
.PT BAKER N 30 41 29.400 W 087 03 21.600	263	2.1 98.7	00+01+14 01+22+36 23:49:22	5 557	
.PT POND N 30 42 03.000 W 087 05 03.600	293	1.6 97.1	00+00+56 01+21+40 23:50:18	4 552	BT 9 4777
.PT BEND N 30 43 23.371 W 087 07 33.879	304	2.5 94.6	00+01+31 01+20+09 23:51:49	7 545	
.TREE FIELD N 30 45 09.000 W 087 10 22.800	308	3.0 91.6	00+01+47 01+18+22 23:53:36	8 537	
.CHUMUCKLA N 30 50 02.560 W 087 16 55.262	313	7.5 84.1	00+04+26 01+13+56 23:58:02	21 516	BT 19
.MCDAVID INTER N 30 52 06.000 W 087 19 23.400	316	3.0 81.2	00+01+58 01+11+58 00:00:00	9 507	CP1 BT 14
.ROAD JUNC N 30 50 59.373 W 087 26 12.000	262	6.0 75.2	00+03+59 01+07+59 00:03:59	19 488	CP2
.RL/RD JUNC N 30 53 09.000 W 087 30 19.200	303	4.1 71.1	00+02+46 01+05+13 00:06:45	13 476	CP3

HT-18 "VIGILANT EAGLES"

*** UNCLASSIFIED ***

Add additional information in 'Remarks' such as freq, squawk, and altitude changes

Smart Pack



LZ Diagram Folded in half

Number each page in bottom right

Low Level Navigation

- Plan Cont'd
  - Additional Fuel Planning
    - Mission Fuel - is the fuel necessary to complete the mission plus extra fuel desired by the mission commander. Mission commanders consider contingencies that may result in delay.
    - Go/No Go Fuel – Introduce other Go/No-Go criteria such as number of aircraft, weather, equipment, enemy, etc.
    - Bingo Fuel – Minimum calculated fuel state necessary to arrive at the closest fuel source with NATOPS minimum fuel.
      - There can be multiple Bingo Fuels
  - Map Study
    - JMPS Sky View
    - Google Earth

Low Level Navigation

- Plan Cont’d
  - Map Preparation
    - Include Course Rules Heading/Distance/Time
    - Frequency and Squawk changes
    - Bingo CP arrow and information box

Low Level Navigation

- Brief
  - Time Hack
    - Ensure accurate time hack at the beginning of the brief
    - Naval Observatory – 202-762-1401
  - Route Brief
    - Have a template to brief from CP to CP
      - Heading, Distance, Time, Intermediate CPs, Aiming features, Funneling and Limiting Feature
  - Brief LZ Considerations
    - NATOPS Landing Site Evaluation (17.6.2)
      - SWEEP Checks on the way
    - SNAs should brief from imagery that has been provided in the briefing spaces

Low Level Navigation

- Brief Cont'd
  - Using appropriate Maps
    - Pensacola Jog and Topographic Map for Orange/Purple
  - Disorientation Procedures
    - Brief direction and airspeed of holding
      - Ex: Right hand turns, 50 KIAS(Bucket Airspeed)

Low Level Navigation

- Execution
  - Fuel Checks
    - Go/No-Go at each CP
    - Time on Station – Time needed for external agencies (FAC, BFHO, etc). Use fuel burn for specific profile.
    - Fuel remaining in gallons – Used internally for Bingo
  - Route Timing
    - CP1 to Last CP
    - At IP's discretion, may introduce concept of TOT.

Formation Low Level Nav

- Time Hack is mandatory - >= 30 sec
- Smart Pack includes: Cover sheet stapled upper left corner, names highlighted, pg # of #, Eastern Form Area Diagram, OLF Diagram, Route cards
- Required Charts: Pensacola JOG AIR & Purple Route 1:50,000 (proper use of the map change over point)
- Brief all towers in AGL vice MSL
- Descend to 500’ AGL at Deaton Bridge & make traffic calls on BTN 15/16
- At CP1 execute 6Ts (don’t transition to route alt (200’ AGL) until after crossing CP1 then switch to Combat Cruise formation, twist RADALT to 150’)
- Execute “Lima Delta” after CP10 climb to 500’AGL slow to 80 KIAS following the pipeline slash to the East, teardrop to re-establish section westbound for CP10
- At CP 10 execute 6Ts descend to route alt (200” AGL) & accel to100 kts
- At CP1 climb 700’ MSL, call clear, pos switch with check in to BTN 15 monitor then positive switch with check in to BTN 12.
- Be prepared to execute disorientation procedures
- SWEEP checks for Harold: Brief anticipated CRS, plan to split, Wing will be in position on the wind side during the split, intended spot/lane, max number sections, alternate plan if full, departure plan (re-split/taxi re-split for departure)

NVG Low Level Nav

- Incorporate NVG Considerations during the mission brief
  - Illumination – natural and artificial
  - Terrain Contrast – utilizing satellite imagery (terminal environment and LZ) and the map
  - Atmospheric Obscurations – current and forecast
- Terminal Area/LZ Brief
  - Utilize both satellite imagery AND an LZ diagram
    - Satellite imagery for terrain discussion/albedo contrast
    - LZ diagram for inclusion in smart pack and symbology (see following slide for Florala example LZ Diagram)
    - Ensure any chum'd/NOTAM obstructions are included on both

FLORALA (0J4) LZ N 31 02 32.5 W 086 18 42.05
3197’ X 75’ Asphalt Runway (22/04)
Trees (75’AGL) SE / Power lines (50’AGL) NE
Winds: ___/___(Forecast)
Elevation: 314’MSL
Egress:
Pr vs. Pa: HIGE/HOGE: __/__%, Pa = 100% Q (5 min)
N
22
04
3197’ X 75’
Lunar Data
Illumination:
Angle:
Azimuth:
Cairns Approach 133.45
TAD (1) Florala UNICOM 123.0
Eastern Common BTN 20
KNDZ Tower BTN 4
Primary Pattern:
Alternate Pattern:
UNCLASSIFIED

Takeaways for SNAs

- Start with what is in the FTI and RWOP
- Utilize planning documents and videos on Factoryhand University
- Practice your brief!

QUESTIONS? CONTACT HT-18 STAN.